

New study shows use of tools supports learning in nonhuman species

October 15 2013, by Alan Flurry



A juvenile capuchin monkey, right, watches an adult capuchin crack a nut.
Credit: Barth W. Wright/Kansas City University

(Phys.org) —Leave young children alone with a soccer ball or a plastic shovel, and they quickly begin to put the object to use, especially if they've observed adults kicking the ball or using the shovel to dig a hole.

A new study from a group of researchers, led by University of Georgia behavioral scientist Dorothy Fragaszy, reports that artifacts—objects similar to the ball or shovel—are an important component in technical learning by nonhuman species. The study, published Oct. 7 in *Philosophical Transactions of the Royal Society B*, documents the work of two groups of researchers investigating cases of habitual [tool](#) use in wild chimpanzees and capuchin monkeys.

The two groups of researchers discovered they were working along parallel lines and observing similar findings. They organized the data from the separate species together in a special issue of the journal.

Tool use in wild animals has long been an area of broad interest among the scientific community. The researchers focused on the use of durable tools and artifacts, especially among younger individuals, to conclude that experience with tools and the opportunity to use them have an enduring impact on the [development](#) of traditional technologies in nonhumans.

"The work that we are doing is strengthened by these common features in our data—that young individuals are spending a lot of time working with the artifacts that are left around by other tool users," said Frigaszy, lead author on the paper and chair of the Behavioral and Brain Sciences Program in the UGA Franklin College of Arts and Sciences department of psychology.

"Though artifacts are pervasive in human in culture, we are more attuned to direct instruction through teaching or even an apprenticeship. But if you're living in a social group where no one is paying attention to what you're doing, then having things around that support your learning really amplifies your learning opportunities."

Study co-author Dora Biro, a Royal Society University Research Fellow and University Lecturer in Animal Behavior in the department of zoology at the University of Oxford, England, explained, "Our work also suggests that the more durable tools are, the higher the likelihood that these artifacts will themselves scaffold learning in young. Stone tools, for example, can survive for many years—unlike most tools made from organic matter—and are thus more likely to be directly involved in the transmission of expertise across generations."

The research provides clues to certain questions about the role of language in the development of technical traditions and especially the development of human-specific cultural traditions.

"It's looking and thinking about how these nonverbal, nonspecifically human systems can support the development of traditions and cultures in nonverbal creatures," Frigaszy said.

"When the circumstances support it, and we think artifacts are an important part of these supporting circumstances, then cognitively less complex individuals-species that don't have language, that don't have explicit teaching, that don't have human forms of culture-they also can acquire and maintain complicated, technical traditions."

More information: [rstb.royalsocietypublishing.org ...
8/1630/20120410.full](http://rstb.royalsocietypublishing.org/doi/10.1098/rstb.2012.0410)

Provided by University of Georgia

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